

## SKILLS

- Languages - Python, C++, C, JavaScript, HTML/CSS, C#, MATLAB, SQL
- Tools - SolidWorks, Git, Jira, Splunk, Jenkins, Linux, FreeRTOS, TensorFlow, Kafka, Kubernetes, Docker
- Hardware - Raspberry Pi, Arduino, STM32 ARM Cortex MCUs, PIC Microcontrollers, DC motor controllers
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## EXPERIENCE

### Firmware Integration Engineering Intern Tesla / Sep 2023 - Dec 2023

- Built a Kafka consumer that automatically updates vehicle configurations when they are changed during production, eliminating several service requests per month.
- Wrote a Python script to automate the validation of changes to our vehicle diagnostics firmware files.
- Investigated hardware and firmware issues for new programs to fix them before they reached production.
- Updated production test processes and built Splunk dashboards to support the process engineering team.

### Firmware Developer Midnight Sun Solar Car Team / Feb 2023 - Sep 2023

- Wrote firmware in C for a solar EV, focused on driver controls like steering, indicators, and cruise control.

### Software Test Engineering Intern Ansys / May 2023 - Aug 2023

- Built an analysis tool with Python to find optimizations in our regression test suite, reducing the required computing resources by ~\$10,000/year.
- Wrote a Python script to analyze our test coverage to help diagnose problems and find gaps in testing.
- Validated and fixed bugs on new features and UI improvements for Ansys System Coupling.

### Manufacturing Software Developer Ford / Sep 2022 - Dec 2022

- Automated our software deployment process with Python and Jenkins, shortening the development cycle from 30 to 27 days.
- Implemented tests to validate device codes and addresses, eliminating serialization defects.
- Developed test fixture code to test vehicle hardware components during manufacturing.
- Programmed features and debugged issues on OS chip images for vehicle connectivity hardware.

### Manufacturing Engineering Co-op Martinrea / Jan 2022 - Apr 2022

- Built a Python app to detect offline devices and automatically email staff to prevent production downtime.
  - Implemented remote document upload and viewing utilities in our SCADA platform with SQL and Python.
  - Cut welding-related production delays by 91% by tracking and root-causing weld defects on parts.
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## PROJECTS

### Computer Vision Self-Driving Car (in progress) [GitHub](#)

- Wrote self-driving software for an Nvidia Jetson Nano, using Python with TensorFlow for the CV model.
- Designed and integrated the electrical system with a computer, motor controller, batteries, and sensors.
- Designed the car's chassis in SolidWorks using laser-cut acrylic parts.

### Tic Tac Toe Neural Network [Try it out](#) / [Video](#) / [GitHub](#)

- Built a neural network from scratch in Python and trained it to play tic tac toe with 97.3% accuracy.

### Lunar Lander Game [Video](#) / [GitHub](#)

- Made a 2D video game with Python and Pygame, in which the player navigates 10 moon landings.
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## EDUCATION

### BASc in Mechatronics Engineering

University of Waterloo / 2020 - 2025